Employment Projections

State of Montana

2015 - 2024

Montana Department of
LABOR & INDUSTRY

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Montana Employment Projections:
2015 - 2024

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Executive Summary

Every year, the Montana Department of Labor and Industry produces employment forecasts for the state of Montana in conjunction with the U.S. Department of Labor. The employment forecasts are produced over a two-year and ten-year time frame, by industry and occupation, and either statewide or geographically by region. The Montana employment projections provide information for businesses planning workforce needs, for education institutions training future workers, for existing workers looking to advance in their career, and for students trying to make informed decisions about their career opportunities. The employment forecasts are intended to help ensure that Montana's workforce is prepared for tomorrow's job opportunities, so that businesses can count on their workforce to ensure strong economic growth in the years to come.

The employment forecasts are an estimate of the future demand for workers based on historical employment data coupled with knowledge that is available at the time of the forecast. Because the economy is constantly changing, the forecasts are not going to be exactly right. Instead, the employment forecasts should be seen as the most likely employment growth outcome of all possible outcomes, given the current knowledge and information about the economy.

Montana is expected to add roughly 7,860 jobs in 2015 and 2016, and then slow to job growth of 5,950 per year from 2017 to 2024. The faster growth in the near term is expected because of strong job growth momentum exiting the recession, particularly in the construction, manufacturing, and retail and wholesale trade industries. After 2016, Montana's employment growth is expected to slow because of restricted labor supply, returning to a pace slightly slower than the long run growth rate since 1990. In the long run, job growth is expected to slow due to worker shortages caused by the retirement of Montana's aging workforce. Tight labor markets caused by worker shortages can provide economic benefits for workers because jobs are easy to find and wages increase rapidly. However, economic growth can be constrained if businesses cannot find the right workers, or enough workers, to produce their goods.

The health care industry is projected to demand the most workers of all industries, adding roughly 1,300 jobs every year through 2024. Health care employment is expected to grow as Montana's aging population continues to demand more health care services and Montana's overall population grows. The health care industry is the only industry that experienced job gains through the recession and recovery, meaning there is not a pool of already trained workers waiting to become reemployed. The health care industry is expected to require significant worker training to fill open positions.

Future employment growth is projected in all of Montana's regions. Annual employment growth by region is shown in Figure 1 below, along with the fastest growing occupations in each region. The Southwest region is projected to add the most jobs, approximately 2,000 every year through 2024. The Southwest region has recovered well from the recession due to the growth of the professional and technical services industry, which includes occupations like engineers, computer programmers and economists. Rapid employment growth in the professional and technical services industry is reflective of a general shift in Montana towards a more service-based economy.

The Northwest and South Central regions of the state are both estimated to add roughly 1,600 jobs every year through 2024. In the Northwest region some of the fastest growing jobs are in health care, while in the South Central region the fastest job growth is in construction occupations. Employment in the North Central region is projected to grow by 680 jobs every year through 2024. Jobs in this region of the state are more heavily concentrated in government, agriculture and health care.

FIGURE 1. REGIONAL PROJECTIONS SUMMARY, 2014-2024

Region	Annual Employment Growth	Fastest Growing Occupations
 Northwest	1,570	Home Health Aides, Physical Therapist Aides, Physicians Assistants, Rock Splitters
 Southwest	2,030	Economists, Chemical Engineers, Market Research Analysts
 North Central	680	Home Health Aides, Cargo and Freight Agents, Wellhead Pumpers, Personal Care Aides
 South Central	1,600	Insulation Workers, Cement Masons, Carpenters, Construction Managers
 Eastern	450	Petroleum Engineers, Service Unit Operators, Roustabouts

Source: Montana Department of Labor and Industry Employment Projections 2014 to 2024.

The Eastern region of the state is expected to add roughly 450 jobs per year through 2024. Employment in the eastern region is concentrated in natural resources and agriculture, two industries that weathered the recession fairly well. The development of the Bakken oil fields spurred rapid employment growth after the recession, but growth has slowed slightly over the past couple years due to cost controls implemented by the oil industry and a decline in the price of oil in late 2014.

Description and Methodology

The Research and Analysis Bureau of the Montana Department of Labor & Industry produces projections of employment growth in Montana both by industry and by occupation. Two-year state-level projections are produced annually, while ten-year forecasts are produced biennially. This report provides two-year and ten-year forecasts at the statewide and regional levels for Montana, although the industry and occupational forecasts highlighted are for Montana as a whole. Detailed regional forecasts by industry and occupation are available at www.lmi.mt.gov in the "data search tool" under "projections."

The projections are based on historic employment data from January 1990 to September 2014. The primary data source for the Montana industry employment projections is the Quarterly Census of Employment and Wages (QCEW), which is published jointly by the Bureau of Labor Statistics and the Montana Department of Labor & Industry. The QCEW covers payroll employment in Montana and is considered the most accurate data source because it is an actual count of employment from wage

records reported to Unemployment Insurance. The QCEW data is aggregated into the North American Industrial Classification System (NAICS) industries. For Montana's statewide industry employment projections, three-digit NAICS industries are used, while regional forecasts are produced at the two-digit NAICS level. All industries include only private employment except for the health care and education industries, which includes both public and private employment. Therefore, the government industry includes all public employment except for workers in the health care and education industries. The treatment of public health care and education employment is consistent with national recommendations from the Employment and Training Administration of the U.S. Department of Labor.

Industry forecasts are developed by comparing various functional forms of time series models, which use past employment trends to predict employment in the future, with fit and analyst insight determining the appropriate model. Fit is determined using historic data, and by comparing the first six months of forecast to the Current Employment Statistics (CES). The CES is an employer-based survey of employment that is published one month after the employment occurred, creating a six month lag between the publication of CES employment and the more accurate QCEW data used to forecast employment. These six months of CES estimates are compared to the first six months of forecast to evaluate the fit of the time series forecasting model.

For certain industries, such as oil and gas mining and government, structural models are developed that utilize forecasted explanatory variables or leading indicators, including energy price forecasts, population projections, or job openings. Because of the increased unknown error introduced into the forecast from the use of forecasted explanatory variables, these structural models are primarily used to inform analyst opinion on which time series model is most appropriate. Industry projections are compared against the Montana forecasts developed by IHS Global Insight and other forecasts for the Montana economy.

After industry forecasts are created, the industry employment is disaggregated into occupations using Occupational Employment Statistics (OES) data. The OES is a survey-based employment estimate that categorizes employment by occupation. The OES provides staffing patterns for each industry, such as indicating that registered nurses comprise 12% of health care industry employment. These staffing patterns are then used to divide industry projections into occupational projections. Change factors calculated at the national level by the Bureau of Labor Statistics provide assumptions on how the staffing patterns for each industry may change over the next ten years as changing technology makes certain jobs obsolete and others more prevalent. For example, file clerks and stock fillers are two occupations that have been becoming obsolete as businesses have automated processes. Change factors adjust the current staffing patterns for predicted changes in future business practices.

Self-employed workers, along with some non-payroll agricultural workers and railroad workers, are not included in the QCEW data used to develop industry forecasts. An estimate of the self-employed and other workers not covered by the QCEW is developed using the Local Area Unemployment Statistics (LAUS), which is a current estimate of total employment (including the self-employed) used to develop the monthly unemployment rate. This year a new unemployment rate estimation model was introduced for LAUS that changed the employment and unemployment estimates for the entire data

series. The employment estimates from the new model did not influence the industry projections, but it does change understanding of self-employed growth. The self-employed estimate is the remainder after payroll employment totals from the QCEW are subtracted from the LAUS employment totals. The estimate is occasionally modified by using information from other data sources, including the Bureau of Economic Analysis's data on employment by industry and the U.S. Department of Agriculture's estimate of the number of Montana farmers. The staffing pattern for self-employed workers is developed by assuming that self-employment roughly averages the distribution of all occupations in the state, but with adjustments to the totals to increase occupations likely to be filled by consultants (such as contractors, farmers, and professionals) and decrease the levels for occupations unlikely to be self-employed (such as teachers or hospital administrators).

The Montana Department of Labor & Industry does not publish error ranges for the employment forecasts, although greater consistency is one of the criteria used when selecting the appropriate time series model for each industry. Some industries and occupations have fairly stable growth paths that can be predicted with a great deal of certainty, while other industries are more susceptible to changing economic conditions. Employment growth in health care has continued a very steady pace over the last twenty years as Montana's population has aged and consumers have continued to demand more health care services. The constant steady growth gives greater confidence in the forecasted employment levels. In contrast, employment in the mining industry varies considerably with changing global prices for oil, energy, and commodities. Price changes at the global level are often difficult to predict, making the employment forecast for this industry fairly uncertain.

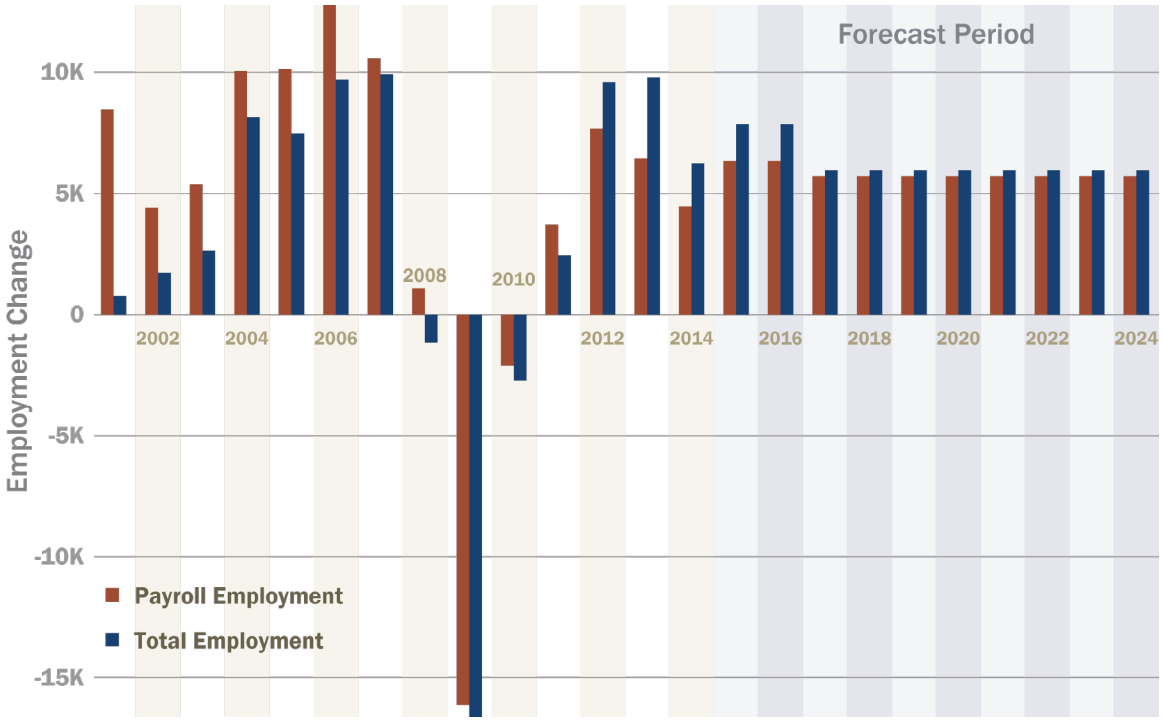
Further, forecasting error will be greater in the self-employed estimates compared to other industries because of the use of the LAUS data. The LAUS data series is a model-based estimate (rather than an actual count from the QCEW data used for other industries), which includes estimation error in the historic data. The estimation error is magnified as the employment is projected into the future, resulting in a fairly wide error range in the self-employed forecasts. There is also forecasting error in other industries, but the error range is smaller because the historic data is an actual count and therefore does not include historic estimation error. The occupational projections include the most uncertainty because both the industry projection and the OES estimate include some error. Regardless, uncertain occupational projections provide better expectations of future growth than the alternative of no forecast estimates.

Knowing about forecast uncertainty helps to interpret the employment forecasts more appropriately. As an example, the 2014-2024 employment forecasts suggest there will be about 400 openings annually for registered nurses, making registered nurses one of the occupations with the highest demand for new workers. In comparison, we are expecting only 36 openings per year for dental assistants. While neither figure is likely to be exactly correct, it is clear that there is a greater demand for nurses than dental assistants (although both occupations are growing). The greater demand for nurses will persist even if the economy undergoes a structural shift or experiences a large recession. The relative demand of occupations is more stable and of greater certainty than the numerical demand.

Montana Economy Overview and Factors Influencing Future Growth

Montana is expected to add roughly 7,860 jobs in 2015 and 2016, and then slow to job growth of 5,950 per year from 2017 to 2024. The faster growth in the near term is expected because of strong job growth momentum exiting the recession, particularly in the construction, manufacturing, retail and wholesale trade industries. After 2016, Montana employment growth is expected to slow in part because of restricted labor supply, returning to a pace slightly slower than the long run growth rate. Montana's forecasted economic growth is illustrated in Figure 2, along with the historic trend since 2001.

FIGURE 2. MONTANA JOBS ADDED OVER PRIOR YEAR, TOTAL AND PAYROLL, HISTORIC (2001–2014) AND PROJECTED (2015–2024)



Source: Historic total employment data comes from the Local Area Unemployment Statistics. Historic payroll employment data comes from the Quarterly Census of Employment and Wages. Projected data comes from the MT Department of Labor and Industry 2015 Employment Forecasts.

Figure 2 illustrates that Montana had strong job growth prior to the recession, especially between 2004 and 2007, with over 10,000 payroll job gains per year. Total job growth during these years averaged slightly less at roughly 8,800 job gains per year. Total job estimates include all payroll jobs, as well as self-employed and agricultural workers who are not included in payroll jobs. The data suggests some workers moved from self-employment into payroll jobs during these bubble years because total payroll employment was growing faster than total employment.

After this period of rapid growth the housing crisis struck, causing significant job losses in Montana and across the nation. From 2008 to 2010, the national recession caused job losses of over 20,000 in Montana, leaving a large number of Montana workers unemployed. The largest losses came in 2009, when total employment fell by 3.5%. The construction industry was the hardest hit, losing over 9,600 jobs at a

rate of 11.1% per year. The national housing crisis also lowered demand for Montana's wood products manufacturing, causing roughly 1,900 job losses in wood products. The manufacturing industry as a whole lost over 4,000 jobs during the recession. The fall in construction demand also impacted the retail and wholesale trade industries, which lost over 5,000 jobs, with the largest retail job losses occurring in the sub-industries most closely associated with housing and construction, such as Construction Materials Wholesalers. In addition to the housing crisis, lower consumer spending in Montana affected all industries, and lower global demand resulted in layoffs for Montana's export industries.

Job losses by industry and occupation is valuable information for evaluating Montana's employment forecasts to determine which industries and occupations have the most unfilled demand for workers. Large job losses in the construction industry during the recession, suggests the industry will not have a shortage of trained workers because there is a pool of unemployed workers who are already trained and ready to fill new construction jobs as they become available. On the other hand, the health care industry has been growing steady through the recession and into recovery. Therefore, growth in health care employment represents a more immediate training need because there is not an existing supply of unemployed, but trained workers.

Exiting the recession, Montana's job growth was slower than expected, with job losses in 2010 and slower-than-average job growth of 0.6% in 2011. In 2012, job growth began to increase more rapidly, with job gains in 2012 and 2013 above 2%. By September of 2013, Montana had recovered all of the jobs lost during the recession -- a year ahead of the nation as a whole. Job growth in the next two years is expected to continue to grow at a faster-than-average pace, with average job growth of 1.6% in 2015 and 2016.

Recently, the U.S. economy has caught up with Montana's employment growth, and is now posting strong job and wage growth. However, the global economy continues to show weakness, with slower growth in China and Europe's economy stalling. The strong U.S. economy has strengthened the dollar against the Euro and other currencies. A strong dollar makes imports from other countries cheaper, and U.S. products more expensive to foreign countries. Montana's natural resource industries relying on international exports may suffer due to slow world demand. Manufacturing, tourism, and other industries with global consumers may also be harmed.

A strong dollar reduces the price of imported goods, benefiting domestic workers and consumers by allowing their dollars to stretch further and purchase more goods. A decrease in the cost of imported goods, coupled with lower gas prices and wage gains, should encourage domestic travel and have a positive impact on consumer based industries, like retail, restaurants, and tourism. However, these industries may also suffer due to the increased cost of international travel, potentially bringing fewer international travelers into Montana.

Demographics continue to drive changes in the Montana economy. The aging workforce in Montana has resulted in an increased number of retirees. Service and leisure industries have benefited from increased retirement income spending. Increased retirement income should work to stabilize the Montana economy because retirement spending tends to vary less with changes in the economy. The continued retirement of Montana's aging workforce has also resulted in worker shortages across the state. As

workers become scarcer, businesses will have to change their recruiting practices to find workers. In the long run, job growth is expected to slow due to the worker shortages caused by the retirement of Montana's aging workforce. After 2016, employment growth is expected to slow to 1.1%, equal to the average annual employment growth in Montana since 1990.

Tight labor markets caused by worker shortages can provide economic benefits for workers because jobs are easy to find and wages increase rapidly. However, economic growth can be constrained if businesses cannot find the right workers, or enough workers, to produce their goods. Montana's overall economic growth will be slowed by worker shortages unless businesses make productivity-enhancing investments to allow each worker to produce more output, allowing economic growth to continue despite fewer workers. Ultimately, Montana's growth depends on our ability to increase technology, productivity, and innovation.

Industry Growth

Figure 3 illustrates the long-term annual growth rate for all industries in Montana, the recent growth rate by industry over the last five years, and the projected growth rates for each industry over a two-year and ten-year time frame. Figure 3 also shows the projected job gain per year for each industry through 2024.

Over the next ten years, professional and technical services, mining, and construction are expected to grow the fastest in percentage terms. The professional and technical services industry is projected to have the fastest employment growth over both the two-year and ten-year time frames. The industry is estimated to add roughly 600 jobs every year through 2024. Rapid employment growth in the professional and technical services industry is reflective of a general shift in Montana towards a more service-based economy. Although service jobs are generally thought to be only low-paying jobs, the service sector also includes the high-paying industries of health care, professional and technical services, and finance and real estate.

Employment growth in the mining industry is projected to stall over the next two years, growing at 0.4% annually, due to the recent drop in oil prices. However, over the next ten years, mining employment growth is expected to return to the long term trend, but is not projected to reach the same rapid growth rate experienced over the last five years. The construction industry is expected to be one of the fastest-growing industries in percentage terms, adding roughly 700 jobs per year through 2024. Faster growth in construction is expected over the next few years as the industry recovers from substantial employment losses during the recession.

In terms of jobs, the large employing industries of health care, construction and leisure activities will demand the most workers. Leisure activities include the accommodation and food service industry, and the arts, entertainment and recreation industry. The leisure activities industry is projected to add over 800 jobs every year through 2024. Many jobs in the leisure activities industry, such as waiters or hotel receptionists, are entry-level positions, requiring little education and experience. Because of the low training need for these jobs, the leisure activities industry is unlikely to require significant worker training to fill the positions.

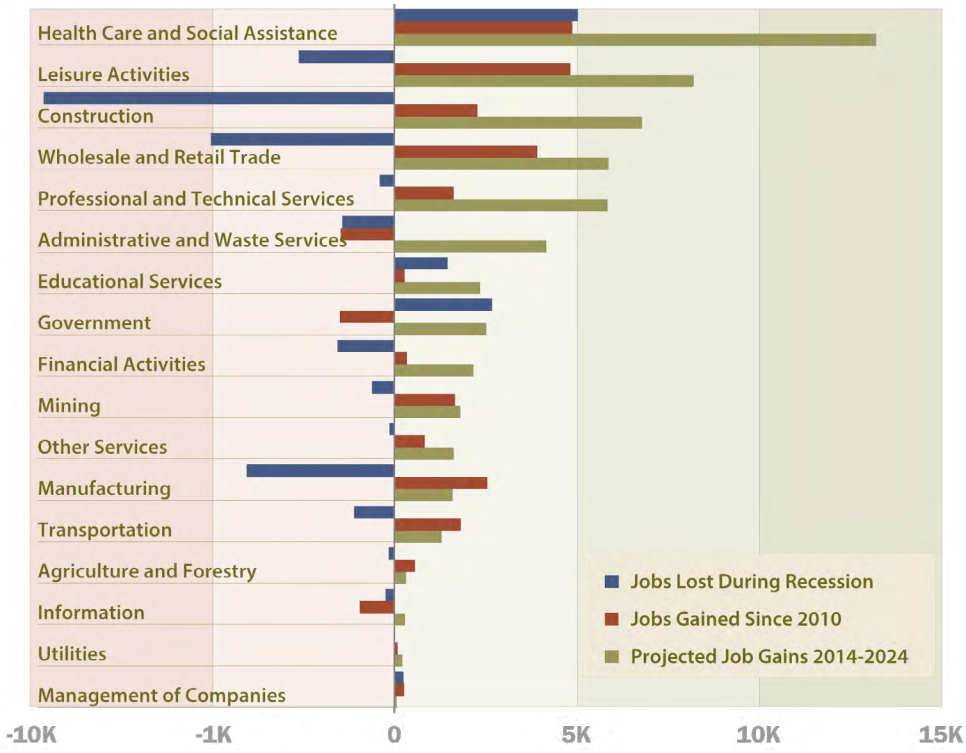
FIGURE 3. MONTANA COMPOUNDING ANNUAL EMPLOYMENT GROWTH, HISTORIC AND PROJECTED

Industry	Long Term Annual Growth Rate (1990-2013)	2010-13 Annual Growth Rate	2014-16 Annual Growth Rate	2017-24 Annual Growth Rate	Average Job Gain Per Year, 2014-16	Average Job Gain Per Year, 2017-24
Health Care & Social Assistance	2.8%	1.9%	1.8%	1.8%	1,220	1,350
Leisure Activities	2.4%	2.1%	1.5%	1.2%	890	800
Construction	3.6%	2.4%	3.0%	2.3%	770	660
Professional & Technical Services	4.1%	2.1%	3.2%	2.4%	650	570
Wholesale & Retail Trade	1.3%	1.4%	1.3%	0.6%	950	500
Admin & Waste Services	4.1%	-2.0%	2.5%	2.1%	440	410
Educational Services	1.3%	0.2%	0.6%	0.6%	230	240
Mining	1.5%	5.6%	0.4%	2.3%	40	220
Local Government	2.7%	0.3%	1.1%	1.0%	210	200
Finance and Real Estate	1.6%	0.4%	1.5%	0.9%	320	190
Other Services	2.4%	1.3%	1.1%	0.9%	180	160
Manufacturing	-0.3%	3.7%	1.5%	0.7%	280	130
Transportation	1.9%	2.8%	0.8%	0.7%	140	130
State Government*	1.2%	0.5%	0.2%	0.8%	20	110
Ag and Forestry	0.8%	3.1%	0.7%	0.6%	30	30
Information	0.3%	-3.4%	0.8%	0.4%	50	30
Utilities	-0.8%	0.8%	0.7%	0.7%	20	20
Management of Companies*	3.5%	3.8%	-1.2%	0.7%	(20)	10
Federal Government	-1.4%	-4.7%	-0.8%	-0.4%	(80)	(40)
Total Payroll Employment	2.0%	1.3%	1.4%	1.2%	6,330	5,730
Self-Employed	-3.2%	3.4%	3.1%	0.4%	1,530	230
Total Employment	1.1%	1.5%	1.6%	1.1%	7,860	5,950

Source: Historic data comes from the Quarterly Census of Employment and Wages. Projected data comes from the MT Department of Labor and Industry 2015 Employment Forecasts.
** The long-term annual growth rate is the compound annual employment growth rate from 2000 to 2013, instead of 1990 to 2013.*

Construction is one of the fastest growing industries in terms of total jobs added and as a percentage of employment. However, even with this rapid growth, the construction industry is not expected to regain the jobs lost during the recession until after 2022. Figure 4 shows total employment change from the recession, recovery and projected employment change over the next ten years. Construction saw the largest job losses during the recession, and the industry has yet to reach prerecession employment levels. Therefore, the training needs in this industry are less severe, as there are likely already-trained construction workers who might wish to return to the industry when jobs become available.

FIGURE 4. JOB GAINS AND LOSSES BY INDUSTRY, HISTORIC AND PROJECTED



Source: Historic data from the Quarterly Census of Employment and Wages.
Projected data from the MT Department of Labor and Industry 2015 Employment Forecasts.

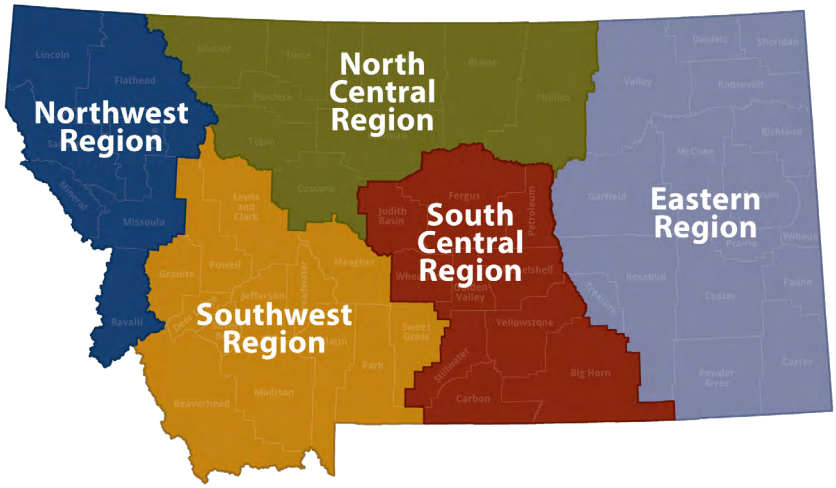
The health care industry is projected to demand the most workers, adding roughly 1,300 jobs every year through 2024. Health care employment is projected to grow at the same rate it has been for the last five years, although slower than the long-term average due to the efficiencies expected with health care reform and a shortage of workers. Health care is expected to continue rapid job growth in the future as Montana's aging population continues to demand more health care services and Montana's overall population grows. Many of the jobs in the health care industry require higher levels of education and training. As shown in Figure 3, the health care industry experienced employment gains during the recession and into recovery. Therefore, there is not necessarily an available pool of workers who are ready and able to fill those positions as they become available. The health care industry is expected to require significant worker training to fill open positions.

The government sector is expected to add jobs more slowly than the long run average due to budget constraints at the federal level. Although federal budget cuts impact federal employees directly, the federal government also transfers spending dollars to state and local governments and the private sector. Tribal communities are particularly impacted by federal spending cuts due to a larger share of public funding coming from federal sources than the rest of Montana. Tribal communities have experienced cuts to their health care and educational employment as a result of the federal sequester. Over the past few years federal employment in Montana has fallen. In the long run, federal government employment is expected to shrink in response to continued budget constraints, while state and local government will slowly add workers as governing responsibilities pass to state and local levels.

Montana's Regions

Figure 5 illustrates the five regions of Montana used for job projections. The Northwest and Southwest portions of Montana faced the largest job losses during the 2007 recession, largely because these areas were more reliant on the hard-hit industries of construction and manufacturing when compared to other portions of the state. In contrast, the Eastern portion of Montana had the fewest job losses because of a heavy reliance on two industries that weathered the recession fairly well, energy and agriculture. The rapid growth in the Eastern region in 2010 can be attributed to the development of the Bakken oil fields, with growth slowing in 2013 and 2014 due to cost controls implemented by the oil industry and a decline in the price of oil in late 2014.

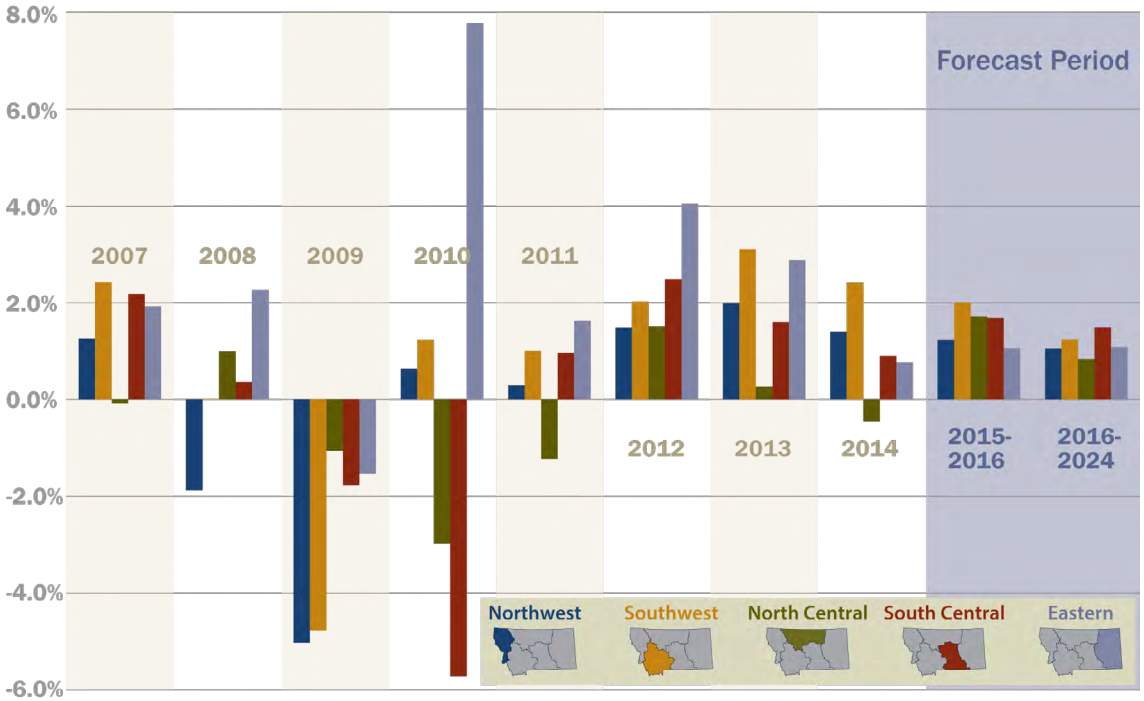
FIGURE 5. MAP OF MONTANA'S REGIONS



Figures 6 and 7 illustrate the historic and projected employment growth in each region, both in percentage terms (Figure 6) and in job counts (Figure 7). Employment growth is expected in all of Montana's regions in the future. The Southwest region is projected to grow the fastest through 2016, with growth around 2%. The Southwest region has been one of the fastest growing regions in terms of employment since the recession, overtaking the Northwest as the region with the largest number of jobs. The Southwest has recovered well in terms of employment since the recession due to growth in the professional and technical services industry, as well as other service based industries. Employment growth in the Southwest region is expected to taper slightly in the future, returning to a more normal growth pattern of 1.3% by 2017.

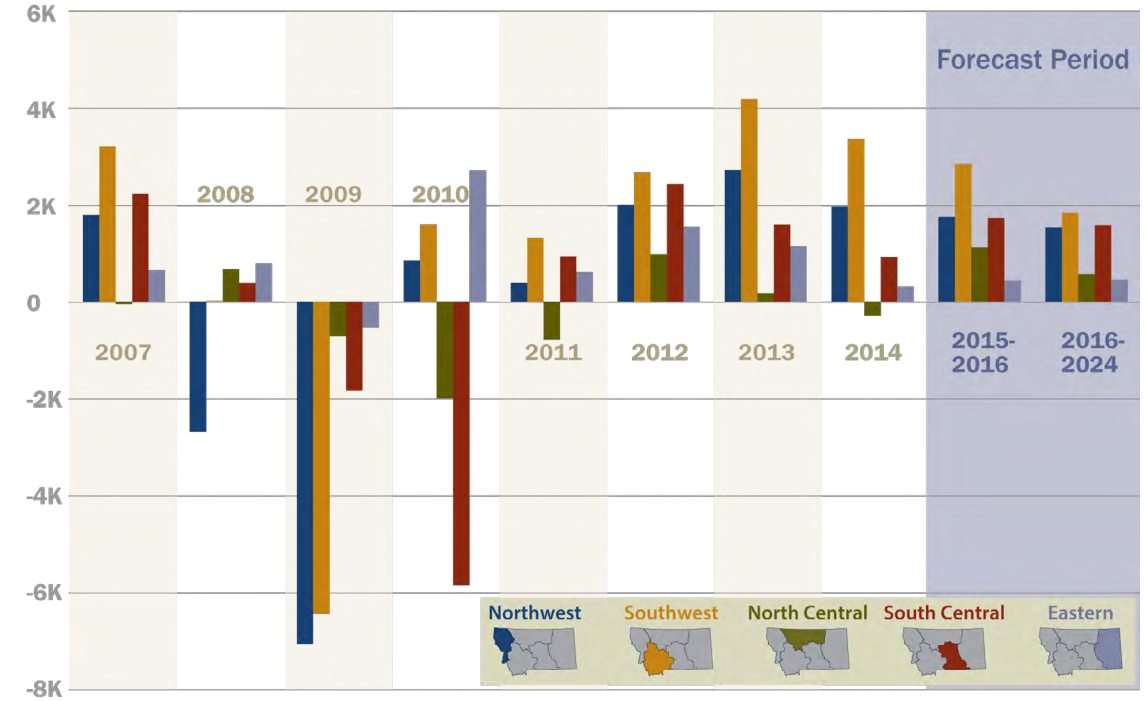
The South Central and North Central regions of the state are projected to experience similar employment growth rates over the next few years, averaging 1.7% growth annually through 2016. The North Central region has seen some of the slowest employment growth exiting the recession, but employment growth is expected to pick up over the next couple years and then return to a more normal growth pattern of 0.8% by 2017. The South Central and Eastern regions of the state have seen a moderation in employment growth over the last few years, due to the slowing of developments in the Bakken area. The 2015 forecast adjusts for the slowdown, still looking for continued job growth in the East and South Central regions, but at a more modest pace.

FIGURE 6. HISTORIC AND PROJECTED ANNUAL JOB GROWTH BY REGION



Source: Historic data from the Quarterly Census of Employment and Wages. Projected data from the MT Department of Labor and Industry 2015 Employment Forecasts.

FIGURE 7. HISTORIC AND PROJECTED ANNUAL JOB GAINS BY REGION



Source: Historic data from the Quarterly Census of Employment and Wages. Projected data from the MT Department of Labor and Industry 2015 Employment Forecasts.

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Although the Northwest and Southwest lost over 5% of their employment in 2009, the Northwest has been slower to recover. All other regions of the state have reached or extended their pre-recession employment levels. The Northwest region is not projected to reach pre-recession employment levels until the end of 2015. Steady employment growth of just over 1% is projected to continue in the Northwest region through 2024. Despite its slower growth rate, the Northwest region is projected to add over 1,500 jobs every year through 2024, second only to the Southwest region. Slower growth in the west still translates to adding a larger number of jobs because of the larger population in Western Montana.

Occupational Demand

Food preparation, office and administrative support, and sales occupations top the list of jobs with the most expected annual openings (Figure 8). These occupational groups are the largest in Montana and are found in a wide variety of industries, so it is not surprising that the state will need a large number of workers to fill these positions in the future.

FIGURE 8. ANNUAL PROJECTED OCCUPATIONAL DEMAND 2014-2024 BY LARGE OCCUPATION GROUP

	Occupation	Annual Openings			2014 MT Average Annual Wage
		New Jobs	Replacement Needs	Total Annual Openings	
1	Food Preparation and Serving Related	642	1,746	2,388	$21,069
2	Office and Administrative Support	793	1,437	2,230	$31,551
3	Sales and Related	491	1,646	2,137	$32,760
4	Construction and Extraction Occupations	710	563	1,273	$45,362
5	Healthcare Practitioners and Technical	565	601	1,166	$70,254
6	Transportation and Material Moving	339	672	1,011	$36,457
7	Education, Training, and Library	200	567	767	$44,278
8	Installation, Maintenance, and Repair	263	504	767	$43,065
9	Management	323	431	754	$79,313
10	Building and Grounds Cleaning and Maintenance	273	411	684	$24,756
11	Personal Care and Service	316	343	659	$24,633
12	Business and Financial Operations	255	362	617	$58,345
13	Production	192	415	607	$36,676
14	Healthcare Support	237	249	486	$27,279
15	Protective Service	101	264	365	$38,597
16	Community and Social Service	142	216	358	$36,802
17	Computer and Mathematical	175	151	326	$58,124
18	Life, Physical, and Social Science	71	233	304	$52,566
19	Architecture and Engineering	132	162	294	$66,195
20	Arts, Design, Entertainment, Sports, and Media	99	186	285	$36,211
21	Legal Occupations	66	64	130	$61,258
22	Farming, Fishing, and Forestry	28	92	120	$30,413
TOTAL		6,415	11,313	17,728	$39,909

Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts

In Montana about 6,400 new jobs are expected each year through 2024. As workers retire or change positions, new workers will also be needed to fill the resulting openings. For example, when a bookkeeper retires or is promoted to an accountant, a new replacement worker is needed to fill that position even though the number of bookkeeper jobs has not changed. The total number of workers needed each year is the sum of replacement openings and growth openings. In total, Montana will need nearly 18,000 new workers each year to fill openings.

Figure 9 shows the top ten detailed occupations with the most projected job openings over the next ten years. Many of the top occupations are within the large occupational groups of food preparation, office and administrative support, and sales. However, registered nurses, janitors and carpenters also top the list of jobs with the most openings. In 2014, average wages for registered nurses were $61,000 annually, well above the statewide average. Carpenters are the only other occupation in Figure 9 that also reports a wage higher than the statewide average wage.

FIGURE 9. TOP TEN DETAILED OCCUPATIONS WITH MOST JOB OPENINGS, 2014-2024

Occupation		Annual Openings			2014 MT Average Annual Wage
		New Jobs	Replacement Needs	Total Annual Openings	
1	Cashiers	63	662	725	$20,872
2	Retail Salespersons	175	510	685	$27,526
3	Combined Food Preparation and Serving Workers, Including Fast Food	187	422	609	$19,790
4	Waiters and Waitresses	95	444	539	$19,231
5	Registered Nurses	199	177	376	$61,814
6	Bartenders	86	195	281	$19,402
7	Bookkeeping and Auditing Clerks	170	109	279	$33,051
8	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	150	129	279	$29,931
9	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	95	144	239	$24,888
10	Carpenters	157	67	224	$39,610

Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts

Many of the occupations with the most job openings do not require high levels of training and education. Although cashiers and retail sales workers require a large number of workers, educators and training professionals do not need to develop training programs for these positions because they can be filled by entry-level workers without specialized education or experience. Figures 10 and 11 illustrate the top jobs requiring post-secondary education, with Figure 10 illustrating the jobs with the most openings requiring a bachelor's degree or more. Occupations in the education and business services industries are in relatively high demand compared to other occupations requiring a bachelor's degree. For occupations requiring some post-secondary education, shown in Figure 11, many health care occupations top the list for the most job openings. These occupations represent more immediate training needs because of the higher levels of training and education required.

FIGURE 10. MOST OPENINGS FOR JOBS THAT REQUIRE A BACHELOR'S DEGREE OR HIGHER, 2014-2024

	Occupation	Minimum Requirements		Annual Openings			2014 MT Average Annual Wage
		Education	Work Experience	New Jobs	Replacement Needs	Total Annual Openings	
1	Accountants and Auditors	Bachelor's		71	106	176	$61,098
2	Elementary School Teachers, Except Special Education	Bachelor's	Internship	43	105	148	$46,721
3	General and Operations Managers	Bachelor's	< 5 years	57	77	134	$86,213
4	Secondary School Teachers, Except Special and Career/Technical Ed	Bachelor's	Internship	9	93	102	$49,117
5	Coaches and Scouts	Bachelor's		26	50	76	$27,976
6	Lawyers	Prof. Degree		36	36	72	$75,712
7	Civil Engineers	Bachelor's		36	32	68	$68,963
8	Substitute Teachers	Bachelor's	Internship	15	46	61	$22,808
9	Computer Programmers	Bachelor's		21	38	58	$64,031
10	Cost Estimators	Bachelor's		27	31	58	$53,015

Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts.

FIGURE 11. JOBS REQUIRING SOME POST-SECONDARY EDUCATION, BUT LESS THAN A BACHELOR'S DEGREE, 2014-2024

	Occupation	Minimum Requirements		Annual Openings			2014 MT Average Annual Wage
		Education	Work Experience	New Jobs	Replacement Needs	Total Annual Openings	
1	Registered Nurses	Associate's		199	177	376	$61,814
2	Nursing Assistants	PS Award		107	111	217	$24,890
3	Heavy and Tractor-Trailer Truck Drivers	PS Award	ST-OJT	100	115	215	$44,069
4	Licensed Practical/ Vocational Nurses	PS Award		50	69	119	$38,762
5	Teacher Assistants	SCND		14	83	97	$25,424
6	Computer User Support Specialists	SCND	MT-OJT	44	33	77	$40,802
7	Forest and Conservation Technicians	Associate's		3	69	71	$35,353
8	Medical Records and Health Info. Technicians	PS Award		24	34	57	$34,727
9	Preschool Teachers, Except Special Education	Associate's		10	32	42	$25,188
10	Hairdressers, Hair-stylists, & Cosmetologists	PS Award		11	29	40	$29,828

Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts.
Abbreviations: PS Award=Postsecondary Award; SCND= Some College, No Degree; ST-OJT= Short-Term On-The-Job Training; MT-OJT= Moderate-Term On-The-Job Training

The education and work experience listed in Figures 10 and 11 are the minimum required to enter the profession as determined by the U.S. Department of Labor, Bureau of Labor Statistics. For occupations without a clear path to entry, the BLS determines the typical path based on the current minimum qualifications of workers filling those positions. At these minimums, the worker will likely be earning less than the average wage for the industry. Although many hospitals are now requiring registered nurses to have bachelor's degrees before getting hired; there are still some workers filling these positions with just an associate's degree, thus the minimum education requirement listed is an associate's degree.

High Wage Jobs

For students looking to maximize their earning potential, Figures 12 and 13 shows the jobs with the most openings earning over $45,000 and $65,000 respectively. Half of the jobs in Figure 12 earning over $45,000 require only a high school diploma or equivalent, as long as the worker has some experience. For example, electricians and construction jobs tend to have a greater emphasis on apprenticeships and

FIGURE 12. JOBS EARNING OVER $45,000 WITH THE MOST OPENINGS, 2014-2024

Occupation	Minimum Requirements		Annual Openings			2014 MT Average Annual Wage
	Education	Work Experience	New Jobs	Replacement Needs	Total Annual Openings	
1 Registered Nurses	Associate's		199	177	376	$61,814
2 Accountants and Auditors	Bachelor's		71	106	176	$61,098
3 Elementary School Teachers, Except Special Education	Bachelor's	Internship	43	105	148	$46,721
4 First-Line Supervisors of Office and Administrative Support Workers	HS or GED	< 5 years	54	92	145	$49,064
5 Sales Representatives, Wholesale and Manufacturing, Except Technical & Scientific Products	HS or GED	MT-OJT	55	87	142	$57,866
6 Operating Engineers and Other Construction Equipment Operators	HS or GED	MT-OJT	64	76	140	$46,398
7 General and Operations Managers	Bachelor's	< 5 years	57	77	134	$86,213
8 Secondary School Teachers, Except Special and Career/Technical Ed	Bachelor's	Internship	9	93	102	$49,117
9 Electricians	HS or GED	Apprentice-ship	48	43	91	$60,700
10 First-Line Supervisors of Construction Trades and Extraction Work	HS or GED	5+ years	61	26	87	$62,633

Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts.
Abbreviations: HS or GED = High School Diploma or General Education Degree; MT-OJT= Moderate-Term On-The-Job Training

on-the-job training instead of post-secondary education. However, most of the top jobs earning $65,000 or more require at least a Bachelor's degree; the only exception being managers. In general, workers with higher education levels earn higher wages, have greater participation in the labor force, and are more likely to be employed than workers with lower education levels.

FIGURE 13. JOBS EARNING OVER $65,000 WITH THE MOST OPENINGS, 2014-2024

Occupation	Minimum Requirements		Annual Openings			2014 MT Average Annual Wage
	Education	Work Experience	New Jobs	Replacement Needs	Total Annual Openings	
1 General and Operations Managers	Bachelor's	< 5 years	57	77	134	$86,213
2 Managers, All Other	HS or GED	< 5 years	28	52	79	$74,654
3 Lawyers	Prof.		36	36	72	$75,712
4 Civil Engineers	Bachelor's		36	32	68	$68,963
5 Physical Therapists	Prof.		27	25	52	$69,587
6 Pharmacists	Prof.		16	27	43	$106,667
7 Medical & Health Services Managers	Bachelor's		18	23	42	$81,143
8 Construction Managers	Bachelor's	MT-OJT	21	17	38	$85,862
9 Chief Executives	Bachelor's	5+ years	13	24	37	$115,513
10 Software Developers, Applications	Bachelor's		23	13	36	$78,736

Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts.
Abbreviations: HS or GED = High School Diploma or General Education Degree; Prof. = Professional Degree; MT-OJT= Moderate-Term On-The-Job Training

Occupational Demand by Education Level

Most new job openings in the next ten years are expected to be at lower education levels. In 2015 and 2016, approximately 70% of the total annual job openings require only a high school diploma or less. Occupations requiring a bachelor's degree make up another 14% of annual openings, which is the most among occupations requiring post-secondary education. Wages increase with education levels, making the jobs with higher education requirements more attractive. Further, jobs with lower education requirements are more likely to be part time.

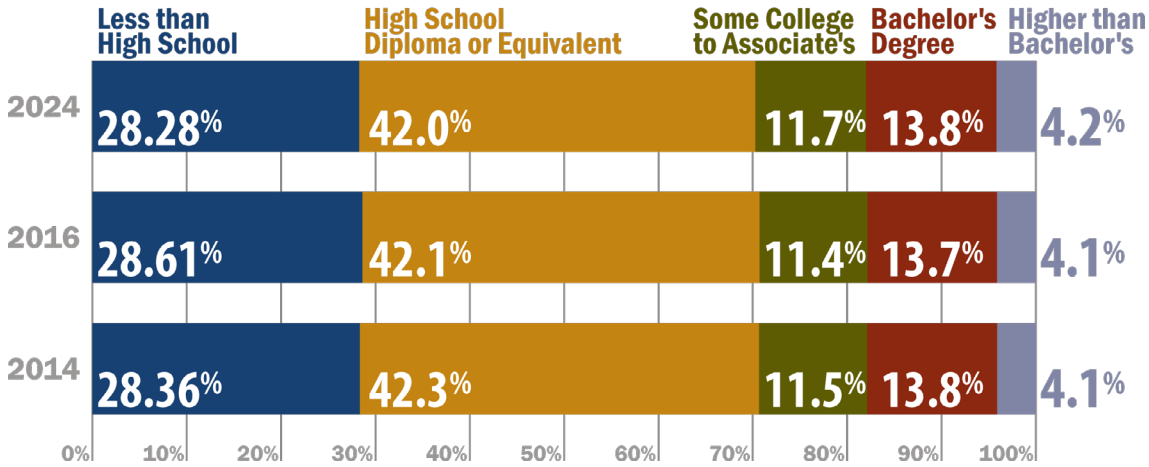
Although more jobs are expected at lower education levels, the shift in jobs over the next ten years will require Montana's population to become more educated. The share of job openings requiring some post-secondary education is projected to grow slightly over the next ten years, as shown in Figure 15. Occupations requiring higher levels of education are projected to grow faster than occupations at low education levels, resulting in an overall shift towards a more educated workforce in Montana.

FIGURE 14. WORKER DEMAND BY EDUCATION LEVEL

Education Level	Annual Openings 2015-2016			Annual Openings 2014-2024			2014 MT Average Annual Wage
	New Jobs	Replacement Needs	Total Annual Openings	New Jobs	Replacement Needs	Total Annual Openings	
Less than high school	2,240	4,758	6,998	1,753	4,260	6,013	$24,005
High school diploma or GED	3,289	3,933	7,222	2,499	3,992	6,491	$38,774
Some college, no degree	81	118	199	64	127	191	$30,942
Postsecondary award	439	537	976	435	569	1,004	$37,841
Associate's degree	377	419	796	379	456	836	$53,030
Bachelor's degree	1,087	1,391	2,478	908	1,483	2,391	$58,881
Master's degree	129	168	297	124	181	305	$58,621
Doctoral or Prof. degree	223	233	456	173	245	417	$101,475

Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts.
Abbreviations: PS Award=Postsecondary Award; SCND= Some College, No Degree; ST-OJT= Short-Term On-The-Job Training; MT-OJT= Moderate-Term On-The-Job Training

FIGURE 15. MONTANA JOBS BY MINIMUM EDUCATION REQUIRED, CURRENT & PROJECTED



Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts.

Occupational Demand by Career Cluster

Career clusters are groups of occupations that share common features, and provide a framework to connect academics to real-world applications. Demand for workers in hospitality and tourism, marketing, and business management and administration is estimated to be the largest of all the career clusters over the next ten years, with over 2,000 annual job openings projected in each cluster. Figure 16 illustrates expected worker demand by career cluster and educational level.

Montana Department of LABOR & INDUSTRY

FIGURE 16. WORKER DEMAND BY CAREER CLUSTER

Career Cluster	Minimum Requirements to Enter Profession	Annual Openings, 2014 to 2024		
		New Jobs	Replacement Needs	Total Annual Openings
Hospitality & Tourism	< HS	790	1,999	2,789
	HS or GED	133	299	432
	Bachelor's	15	11	26
	TOTAL	**938**	**2,309**	**3,247**
Marketing	< HS	277	1,272	1,549
	HS or GED	239	383	622
	Bachelor's	44	43	87
	TOTAL	**560**	**1,698**	**2,258**
Business Management & Administration	< HS	1	157	157
	HS or GED	561	970	1,531
	Bachelor's	139	187	326
	TOTAL	**701**	**1,314**	**2,014**
Architecture & Construction	< HS	318	321	638
	HS, GED, Assoc. or PS	511	439	950
	Bachelor's	104	103	208
	TOTAL	**933**	**863**	**1,795**
Health Science	< HS	59	34	93
	HS or GED	111	90	201
	Assoc. or PS	526	525	1,052
	Bachelor's or Master's	70	76	147
	Phd or Prof	95	146	241
	TOTAL	**861**	**872**	**1,733**
Transportation, Distribution & Logistics	< HS	91	274	365
	HS or GED	211	467	678
	Assoc. or PS	107	131	238
	Bachelor's degree	3	4	6
	TOTAL	**412**	**875**	**1,288**
Human Services	< HS	166	79	245
	HS or GED	121	196	317
	Assoc. or PS	1,421	2,570	3,991
	Bachelor's	60	93	153
	Master's	41	54	94
	Phd or Prof	5	14	19
	TOTAL	**415**	**473**	**888**
Manufacturing	< HS	13	37	50
	HS or GED	250	461	711
	Assoc. or PS	39	68	107
	TOTAL	**302**	**566**	**868**
Education & Training	HS or GED	18	17	35
	Assoc. or PS	27	129	156
	Bachelor's	119	362	481
	Master's	31	75	106
	Phd or Prof	32	43	75
	TOTAL	**227**	**625**	**851**
Finance	HS or GED	77	212	289
	Bachelor's	127	187	315
	TOTAL	**204**	**399**	**603**
Agriculture, Food & Natural Resources	< HS, HS or GED	175	229	403
	Assoc. or PS, or Bachelor's	32	143	174
	TOTAL	**207**	**372**	**578**
Law, Public Safety, Corrections & Security	HS, GED, Assoc. or PS	145	322	467
	Bachelor's	2	11	13
	Phd or Prof	39	41	80
	TOTAL	**185**	**374**	**559**
Information Technology	Assoc. or PS	63	50	113
	Bachelor's	105	96	201
	TOTAL	**169**	**146**	**315**
Science, Technology, Engineering & Mathematics	Assoc. or PS	ND	ND	ND
	Bachelor's	69	115	184
	Master's	10	11	21
	Phd or Prof	ND	ND	ND
	TOTAL	**82**	**134**	**216**

FIGURE 16. WORKER DEMAND BY CAREER CLUSTER *(CONTINUED)*

Career Cluster	Minimum Requirements to Enter Profession	Annual Openings, 2014 to 2024		
		New Jobs	Replacement Needs	Total Annual Openings
Arts, Audio/Video Technology & Communications	HS, GED, Assoc. or PS	37	69	105
	Bachelor's	33	76	108
	TOTAL	**70**	**144**	**213**
Government and Public Administration	HS or GED	ND	ND	ND
	Bachelor's	24	48	72
	Master's	ND	ND	ND
	TOTAL	**56**	**106**	**161**

Source: The Montana Department of Labor and Industry 2014 to 2024 Employment Forecasts.
Abbreviations: < HS = Less than High School; HS or GED = High school diploma or equivalent; Assoc. or PS= Associate's Degree of Postsecondary Award; Phd or Prof. = Doctoral or Professional Degree, ND=Not Disclosable.

Occupational Demand by Skill

Education and training programs are focused on teaching workers the technical skills they will need to succeed in a particular career. However, a good worker must also have strong soft skills, such as communication, time management, and the ability to follow directions. Figure 17 categorizes the expected job openings by the soft skill most frequently used in the occupation. Montana workers need to have developed coordination, service orientation, and social perceptiveness in order to successfully fill jobs in the future. Most jobs will only require low or medium levels of soft skills, but roughly 754 job openings per year will require high levels of soft skills.

FIGURE 17. ANNUAL JOB OPENINGS BY MOST COMMONLY USED SOFT SKILL, 2014-2024

Soft Skill	Level of Skill		
	Low	Medium	High
Coordination - Adjusting to others' actions	3,615	1,415	17
Service Orientation - Actively looking for ways to help people	2,984	949	NA
Social Perceptiveness - Being aware and understanding others' reactions	457	1,152	296
Persuasion - Persuading others to change their minds or behavior	ND	1,129	72
Judgment and Decision Making - Considering the relative costs and benefits of potential actions	364	583	163
Time Management - Managing own time and time of others	894	114	NA
Complex Problem Solving - Identifying problems, evaluating options, and implementing solutions	980	343	18
Instructing - Teaching others	240	672	118
Negotiation - Bringing people together to reconcile differences	32	189	1
Management of Financial Resources - Determining how money will be spent and accounting for expenditures	NA	143	22
Systems Evaluation - Identifying measures or indicators of system performance	NA	131	ND
Management of Personnel Resources - Motivating, developing, and directing people as they work	74	71	12
Systems Analysis - Determining how a system should work, and how changes will affect outcomes	4	82	NA

SOURCE: The Montana Department of Labor and Industry 2014 -2024 Employment Forecasts.
**ND=Non-disclosable, NA= Not Available*

Health Care Jobs

The health care industry faces significant labor force challenges and represents one of the areas where significant effort is being made to ensure an adequate workforce is available to fill open positions. The health care industry is Montana's largest employing industry, with 66,000 employees in 2013. In addition to being a large employer, health care employment has been one of the state's fastest growing industries with a compounding growth rate of 2.8% annually since 1990. The growth in health care employment has been quite steady, even during the recession when all other private industries experienced job loss. Employment projections suggest this consistent employment growth will continue at a rate of 1.8% annually, adding roughly 1,300 jobs every year until 2024.

FIGURE 18. TOP 20 HEALTH CARE JOBS WITH THE MOST ANNUAL OPENINGS, 2014–2024

Occupation	Minimum Requirements		Annual Openings			2014 MT Average Annual Wage
	Education	Work Experience	New Jobs	Replacement Needs	Total Annual Openings	
1 Registered Nurses	Associate's		199	177	376	$61,814
2 Nursing Assistants	PS Award		107	111	218	$24,890
3 LPNs and LVNs	PS Award		50	69	119	$38,762
4 Home Health Aides	< HS	ST-OJT	59	34	93	$22,368
5 Medical Records and HIT	PS Award		24	34	57	$34,727
6 Physical Therapists	Prof		27	25	52	$69,587
7 Pharmacists	Prof		16	27	43	$106,667
8 Dental Assistants	PS Award		13	25	37	$33,202
9 Physicians and Surgeons	Prof	Int/Res	13	22	35	$228,882
10 EMTs and Paramedics	PS Award		13	21	34	$29,591
11 Dental Hygienists	Associate's		14	19	33	$68,591
12 Medical Assistants	PS Award		15	16	31	$31,263
13 Pharmacy Technicians	HS or GED	MT-OJT	17	11	28	$33,408
14 Radiologic Technicians	Associate's		15	12	26	$53,377
15 Medical & Clinical Lab Technicians	Associate's		12	13	26	$38,356
16 Psychiatric Aides	HS or GED	ST-OJT	5	17	22	$23,719
17 Veterinarians	Prof		8	14	22	$70,880
18 Medical and Clinical Lab Technologists	Bachelor's		7	15	21	$58,177
19 Veterinary Technicians	Associate's		16	4	20	$28,406
20 Physician Assistants	Master's		12	8	20	$95,546

Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts.
Abbreviations: <HS =Less than high school diploma, HS or GED = high school diploma or GED, PS= postsecondary non-degree award, Prof= Doctoral or Professional degree, ST-OJT=Short-term on the job training, MT-OJT=Medium-tem OJT, Int/Res = Internship or Residency

Occupations within the health care industry are primarily organized into two general occupational groups, Health Care Practitioners and Technical Occupations and Health Care Support Occupations. Within these health care specific occupations, there are at least twenty occupations projected to need more than twenty new workers each year to fill openings. Figure 18 shows the top twenty health care jobs with the most annual openings. All of the largest growing health care occupations require at least some post-secondary education. Registered Nurses top the list, with an estimated 376 annual openings every year through 2024.

FIGURE 19. TOP 20 NON-HEALTH CARE JOBS WITHIN THE HEALTH CARE INDUSTRY, 2014–2024

Occupation	Minimum Requirements		Annual Openings			2014 MT Average Annual Wage
	Education	Work Experience	New Jobs	Replacement Needs	Total Annual Openings	
1 Personal Care Aides	< HS	ST-OJT	156	46	201	$21,775
2 Medical Secretaries	HS or GED	MT-OJT	58	27	84	$30,954
3 Social & Human Service Assistants	HS or GED	ST-OJT	28	41	69	$26,272
4 Maids and Housekeeping Cleaners	< HS	ST-OJT	90	132	222	$20,908
5 Childcare Workers	HS or GED	ST-OJT	40	99	139	$20,758
6 Cooks, Institution & Cafeteria	< HS	ST-OJT	24	41	64	$25,215
7 Receptionists & Information Clerks	HS or GED	ST-OJT	23	80	103	$26,339
8 Bookkeeping, Accounting, &Auditing Clerks	HS or GED	MT-OJT	170	109	280	$33,051
9 Billing and Posting Clerks	HS or GED	ST-OJT	29	32	61	$32,574
10 Medical & Health Services Managers	Bachelor's		18	23	42	$81,143
11 Secretaries and Admin Assistants	HS or GED	ST-OJT	150	129	278	$29,931
12 Food Servers, Non restaurant	< HS	ST-OJT	18	29	47	$19,473
13 Mental Health Counselors	Master's	Int/Res	14	19	33	$31,319
14 Substance Abuse & Behavioral Disorder Counselors	HS or GED	MT-OJT	14	12	26	$40,308
15 Child, Family, & School Social Workers	Bachelor's		18	24	42	$34,917
16 Mental Health & Substance Abuse Social Workers	Bachelor's		10	12	23	$35,584
17 Recreation Workers	Bachelor's		15	11	26	$25,022
18 Maintenance & Repair Workers	HS or GED	LT-OJT	54	82	136	$33,859
19 Health Care Social Workers	Master's		9	8	17	$47,478
20 First-Line Supervisors of Office Workers	HS or GED		54	92	145	$49,064

Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts.
Abbreviations: <HS =Less than high school diploma, HS or GED = high school diploma or GED, PS= postsecondary non-degree award, Prof= Doctoral or Professional degree, ST-OJT=Short-term on the job training, MT-OJT=Medium-tem OJT, Int/Res = Internship or Residency

In addition to the occupations that provide health care services, there are a number of other occupations in the health care industry, such as personal care aides, receptionists, maids and housekeeping cleaners, cooks and childcare workers. These non-health care jobs have become increasingly important because health care providers are evaluated not only based on health outcomes, but also on patient experience. The emphasis on patient experience includes factors such as quality of food, cleanliness of rooms, and responsiveness and friendliness of staff.

The top twenty non-health care occupations within the health care industry with the largest job growth in the next ten years are shown in Figure 19. The occupations are ranked from most job openings to least job openings within the health care industry. The annual total openings listed in Figure 19 include all projected job openings for that occupation, not just those within the health care industry. The average annual wage listed for each occupation is the average for that occupation across all industries, and is not specific to the health care industry.

Worker Demand by Other Job Characteristics

The last section of this report includes tables by certain job characteristics that are occasionally requested by our customers. Many students and educators are interested in fields of study with bright job prospects for the future. Figure 20 contains the demand for occupations that require specialized knowledge of science, technology, engineering, and math (STEM) subjects. Projected openings are organized based on the discipline (field of study), occupation type, and domain. Reflecting the high demand for health care workers; the most projected openings are in the biology STEM discipline, the Research and Development, Design, and Practitioners occupation type, and the Health Domain. Excluding health professions, nearly a thousand annual openings are expected for STEM jobs over the next ten years and every STEM field has an average pay above the state average.

Occupational projections for STEM positions generally inform students and educators in the university setting what courses of study in two and four-year institutions have a high likelihood of future employment. However, many workers and employers seek training opportunities outside of the university system. For these people, apprenticeship programs provide an opportunity to learn new skills and earn credentials while remaining employed and earning wages. This arrangement reduces the financial strain of formal education for workers and allows employers to teach their workers the precise skills they require in their workplace. Apprenticeship programs take many forms and are possible in many occupations outside of the traditional trades that utilize them. Innovative new apprenticeships in health care and high-tech occupations are being developed in order to address the looming worker shortage and specific employer needs. Figure 21 provides the projected job openings for traditional trade, health care, and high-tech occupations that can be apprenticed. The average wages for these positions are for all workers. Once a worker becomes an apprentice, they tend to earn more than their non-apprentice counterparts.

FIGURE 20. WORKER DEMAND FOR SCIENCE, TECHNOLOGY, ENGINEERING AND MATH JOBS

		Annual Openings 2015 and 2016			Annual Openings 2014-2024			2014 MT Average Annual Wage
		New Jobs	Replacement Needs	Total Annual Openings	New Jobs	Replacement Needs	Total Annual Openings	
DISCIPLINE	Economics and Accounting	229	334	563	213	357	570	$86,910
	Computer Science	458	362	820	370	398	768	$63,443
	Engineering	359	322	681	309	347	656	$66,080
	Math	415	434	849	351	468	819	$73,446
	Physics	314	346	659	292	373	664	$73,853
	Biology	604	741	1,345	606	806	1,412	$70,444
	Chemistry	378	505	883	365	539	904	$80,205
OCCUPATION TYPE	R&D, Design, Practitioner	661	607	1,268	598	662	1,260	$79,321
	Technologist or Technician	381	450	831	344	483	827	$44,402
	Postsecondary Teaching	25	26	51	24	29	53	$72,497
	Sales	7	11	18	8	11	19	$85,592
	Managerial	32	36	68	34	42	76	$90,536
DOMAIN	Life & Physical Science, Engineering, Math and IT	449	515	964	384	546	930	$62,174
	Social Science	25	35	60	18	37	55	$64,111
	Health	611	567	1,178	593	631	1,224	$69,447
	Architecturre	ND	ND	ND	ND	ND	ND	$67,777
TOTAL STEM JOBS		**1,105**	**1,129**	**2,234**	**1,008**	**1,227**	**2,235**	**$66,182**

Source: The Montana Department of Labor and Industry 2014 to 2024 Occupational Employment Forecasts.
Abbreviations: PS Award=Postsecondary Award; SCND= Some College, No Degree; ST-OJT= Short-Term On-The-Job Training; MT-OJT= Moderate-Term On-The-Job Training

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